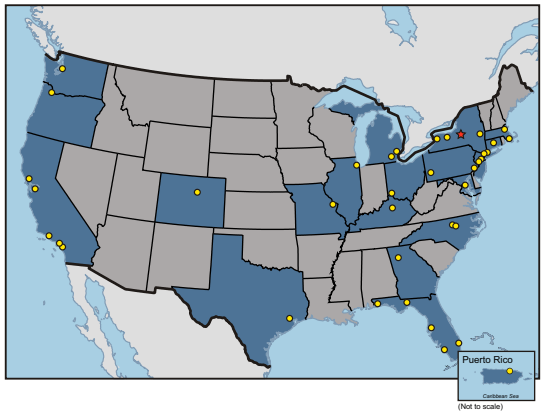
Introduction to BBL

BBL was incorporated in 1984 in Syracuse, New York, by 12 professionals whose goal was to establish a nationally recognized source of creative solutions to a broad range of environmental engineering and scientific problems.

Since that time, our firm has grown to include more than 650 engineers, scientists, economists, and technical support personnel in offices throughout the United States. BBL is headquartered in Syracuse, New York, with offices across the country to assist clients with regional and national environmental programs. These offices provide efficient response to our clients' needs. An industry leader, BBL is ranked 40th on *Engineering News-Record's* (ENR's) list of Top 200 Design Firms, 11th on ENR's List of Top 20 Environmental Science Firms, and 13th on ENR's List of All-Environmental Firms.

While we are not the biggest consulting firm, we have built a company that, from its beginnings, has been able to provide the highest levels of support to the nation's leading industrial companies. Much of the firm's success and growth is due to our ability to conduct large, multifaceted projects. This success is primarily the result of a corporate management philosophy that facilitates effective coordination among specialized services and groups critical to addressing our clients' issues.



Office Locations

BBL is headquartered in Syracuse, New York, and has more than 35 offices across the country to assist clients with regional and national environmental programs. These offices include full-service locations, as well as project offices, to provide efficient response to our clients' needs.

Operating Model

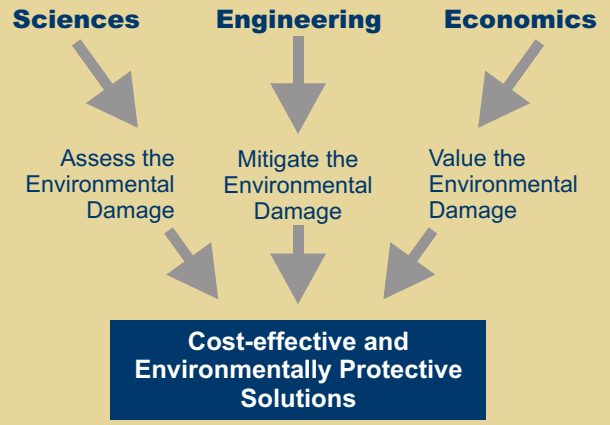
BBL organizes our core consulting, engineering, sciences, and economic groups according to our clients' environmental needs. From these core groups, BBL assembles a project team composed of professionals

Based on experience gained from 20 of the Fortune 100 companies, we bring a practical application of "best-in-class" tools from all industry segments to the complex issues involved in addressing environmental assessment and management issues.

BBL®
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

Integration of Disciplines

BBL offers a unique integration of disciplines that provides a level of service and value not found in other firms. Some may offer two of the areas below, but only BBL offers all three integrated into one company.



knowledgeable in regional, environmental, and regulatory issues. BBL's staff offers clients a comprehensive source of environmental engineering, scientific, and economic expertise.

Engineering: Our engineering staff includes civil/environmental, sanitary, chemical, electrical, mechanical, structural, and geotechnical engineers.

Sciences: BBL's scientific staff includes hydrogeologists, geochemists, soil scientists, biologists, environmental toxicologists, atmospheric scientists, industrial hygienists, chemists, and statisticians.

Economics: Our staff includes economists with advanced degrees in various specialties, such as environmental economics, energy economics, microeconomics, and quantitative analysis.

Operations Consulting: Other BBL staff members include surveyors, field technicians, drafters, and construction managers. State-of-the-art technical field and office equipment, computer modeling capabilities, and access to on-line databases enable our staff to serve our clients coast-to-coast both cost-effectively and efficiently.

Comprehensive Environmental Services

BBL offers a comprehensive source for site assessment, investigation, and remediation of hazardous waste sites and a broad spectrum of services to address client environmental engineering, scientific, and economic needs:

Engineering Services

- Feasibility Studies
- Engineering Evaluation/Cost Analysis
- Remedial Design
- Solid Waste Management/Landfill Siting, Design, and Closure
- Landfill Permitting
- Geotechnical Engineering

A Commitment to Safety…

BBL is in a select group in terms of safety performance, with one of the lowest OSHA Recordable Injury and Lost Workday Case rates for our industry. Internal quality assurance and safety programs are implemented for all projects. Our employee training and medical surveillance programs meet or exceed OSHA standards, and field activities are routinely reviewed by management to verify safe operations.

- Facilities Engineering
- Facility Decontamination and Decommissioning
- Property Redevelopment
- Water/Wastewater Engineering
- Stormwater Management
- Mapping and Surveying

Scientific Services

- Remedial Investigations/RCRA Facility Investigations
- Hydrogeologic Studies
- Sediment Management/Contaminant Transport Analyses
- Groundwater Modeling
- Risk Assessment

- Wetlands Delineation/Mitigation
- Air Quality Monitoring and Modeling
- Health, Safety, and Industrial Hygiene Services
- Environmental Training
- Information Management
- Data Validation
- Watershed/TMDL Services

Economic Services

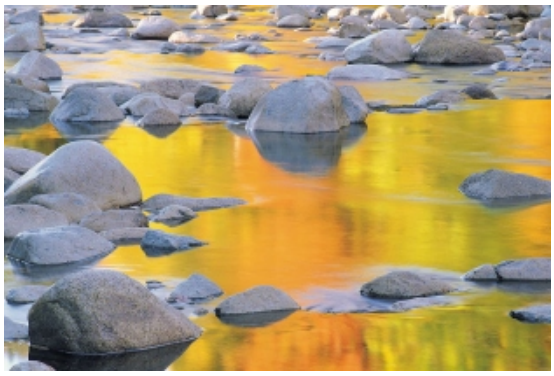
- Natural Resource Damage Assessment
- Solutions for Meeting 316 (b) Regulations
- Evaluation of Property Value and Business Income Damage Claims
- Quantification of Recreation Use Losses
- Valuation of Recreation Activities
- Evaluation of Compensatory Restoration Alternatives
- Sophisticated Statistical Analyses
- Economic Analysis & Modeling
- Primary Data Collection and Management
- Economic Literature Reviews
- Critique of Opposing Expert Reports
- Expert Witness Testimony

Operations Consulting

- Environmental Assessment and Auditing
- Regulatory Compliance
- Pollution Prevention/Waste Minimization
- Operation and Maintenance Process Evaluation and Optimization
- International Standards Organization 14000 Support Capabilities

Operations Consulting (coontinued)

- Contracting Services
- Construction Management
- Litigation Support
- Regulatory Assistance and Negotiation
- Expert Witness Testimony
- Community Relations Planning



BBL provides strategic consulting services for diverse environmental needs at sites across the country. We have an in-depth understanding of relevant issues and the technical expertise to recommend practical, technically feasible solutions. Furthermore, we are able to respond to client needs within tight deadlines while maintaining the high quality of our work.

BBL®
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

www.bbl-inc.com

BBL®
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

www.bbl-inc.com

focus
on sediment services

BBL®
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

Focused on Sediments

A cornerstone of BBL's environmental practice is the broad range of our sediment management capabilities at aquatic sites. We are a leader in the field of sediment quality assessment and management, having directed environmental programs at more than 80 aquatic sites in the United States and abroad. Whether addressing concerns involving a small creek or an entire river and harbor system, BBL's staff of engineers, scientists, and field specialists conduct field investigations, evaluate potential risks, assess potential remedial options, and devise effective response programs. We have established a national reputation for developing and implementing reasonable assessment and mitigation strategies at sediment sites.

Our unparalleled experience designing and investigating sediment remedies gives us exceptional authority to address the effectiveness, implementability, and costs of sediment remedies. In fact, major multinational firms rely on BBL for our nationally recognized sediment expertise and commitment to achieving cost-effective, common-sense solutions to their sediment concerns. We provide characterization and design services for projects at assessment and remediation sites with sediments ranging from a few hundred to several million cubic yards. Current federal guidance reflects much of BBL's work product in this area.

Providing a Talented Team of Sediment Experts

Our long-standing and growing work in the field of sediment management has resulted in an unsurpassed team of scientists, engineers, and technicians who are focused on sediment site work. Their areas of specialization include ecology; ecotoxicology; toxicology; hydrology; hydrogeology; geology; environmental systems analysis; environmental chemistry; analytical chemistry; and civil, chemical, and environmental engineering. This core group is complemented on a regular basis by staff with other technical specializations, including geotechnical and structural engineering, drafting, and data management.

BBL designs cost-effective, reliable aquatic studies and develops reasonable and technically sound remedial strategies based on technical, public, and financial considerations. All the while, our team provides highly credible and compelling support to public information and community relations programs at these sites.

Planning and Performing Sediment Assessments

Staffed by some of the nation's foremost professionals in managing aquatic sites impacted by PCBs, PAHs, metals, dioxins, and other constituents, our team has the expertise to develop and execute comprehensive sediment, biota, and water-column investigations. These investigations can involve collecting and interpreting physical, chemical, and biological parameters to support a range of client goals, including regulatory needs and litigation support. To promote authoritative investigations, BBL's in-house field services staff and aquatic specialists draw on their experience performing investigative programs at a variety of aquatic sites. Similarly, our risk assessment specialists and toxicologists combine their in-depth understanding of environmental issues with practical experience conducting risk assessments to provide complete risk characterization and analysis services.

Providing Negotiation and Litigation Assistance

Many legal cases involving sediment-related issues rely on the quality and completeness of the technical investigation, the strategy developed to support that investigation, and the presentation of the evidence. Clients depend on BBL's detailed analysis of their needs, assessment of their circumstances, and development of environmentally sound solutions. To successfully navigate the regulatory and technical pitfalls in federal, state, and local statutes, BBL continually stays abreast of ever-changing regulations and technical innovations.

BBL offers our capability, experience, and resolve to successfully investigate and defend the technical and non-technical issues surrounding impacted aquatic sites, potential and actual natural resource damage (NRD) claims, and tort claims. Our technical professionals have a keen awareness of the interrelationships between remedial and natural resource damage assessment (NRDA) liability, and we are experienced in designing programs to cost-effectively resolve those liabilities jointly. We stand ready to supply our clients with the vital regulatory information, data interpretation, and engineering and scientific expertise to evaluate each client's present and future position and define and attain strategic objectives.

Designing and Implementing Traditional and Innovative Sediment Remediation Programs

BBL's sediment management capabilities extend to evaluating and implementing traditional and innovative remedial technologies. We conduct feasibility studies (FSs) and corrective measures studies (CMSs), perform bench- and pilot-scale treatability studies, and design and implement full-scale remedial programs involving techniques such as institutional controls, natural recovery, capping/armoring, and dredging/hot-spot removal. We are a leader in designing in-place capping remedies for impacted sediments, with more than 10 years of experience working on major rivers, harbors, and waterways. BBL's sediment team has experience with sediment evaluations and cap design at major aquatic sites around the nation, and we take pride in the fact that we are able to develop innovative and cost-effective capping solutions that generate win-win situations for stakeholders.

BBL's unparalleled ability to complete top-quality engineering design and construction documents and our staff's hands-on remedial dredging and project management experience are the true differentiators that put us a step ahead of our competition. BBL has designed all aspects of numerous sediment dredging projects and has undertaken all the necessary ancillary design-related activities, including permitting issues, environmental impact statements, monitoring programs, and identification and evaluation of traditional and innovative disposal options. BBL's staff has been directly involved with approximately one-third of all completed environmental dredging projects in the United States.

Our sediment management expertise allows us to manage the entire process: from strategic planning, agency negotiation, and community relations to design, construction, and long-term operation, maintenance, and monitoring (OMM), if needed. In conjunction with our remedial management and construction firm, BBL Environmental Services, Inc. (BBLES), we can provide turnkey services for any remedial program.

A National Reputation in Sediment Management

BBL has established a national reputation for developing and implementing technically sound and cost-efficient assessment and mitigation approaches at sediment sites while protecting human health and the environment.

We have experience in the following areas:

Assessments

- site investigation design
- sediment contaminant distribution investigation
- contaminant transport to floodplain assessment
- surface-water contaminant transport investigation
- sampling, analysis, and interpretation of contaminant levels in biota
- human health and ecological risk assessment
- quantitative system analysis
- feasibility assessment
- sediment stability assessment
- recoverability assessment

Remediation/Restoration

- institutional controls
- monitored natural attenuation
- capping and armoring
- dredging and hot-spot removal
- habitat restoration

Negotiation/Litigation Assistance

- natural resource damage assessment
- technical impracticability waivers
- expert witness testimony
- consent order and work plan negotiation
- formal opinions and comments on proposed remedial action plans and records of decision (RODs)
- defense of government litigation
- litigation between PRPs
- insurance cost recovery
- tort cases
- proactive management to help avoid claims before they occur

Robert Romagnoli, P.E.

Senior Engineer I/Vice President

Project Experience

River and Sediment Experience

Currently serves as program manager of a Remedial Investigation/Feasibility Study (RI/FS) for a 6-mile stretch of the Passaic River in Newark, New Jersey. Some of the more significant responsibilities include:

- interacting with USEPA and other agencies;
- developing a comprehensive RI Report;
- assessing various dioxin treatment technologies and overseeing the development of potential treatability studies for the site;
- overseeing a significant CSO investigation to understand mass loadings into the river system;
- developing dredge monitoring programs; and
- developing a highly automated and user-friendly GIS work platform for use by the entire project team.

Served as project manager for the completion of an RI/FS at a large PCB-impacted river site in northern New York State. Specifically responsible for managing the following aspects of the project:

Mr. Romagnoli has more than 15 years of experience in the environmental consulting industry. He has developed an expertise in the following areas: providing technical support related to aquatic system restoration; conducting multi-phase Environmental Process Management evaluations; designing wastewater/ground-water treatment and recovery systems; preparing construction specifications; and preparing various RI/FS-related reports. Mr. Romagnoli also has provided construction oversight and project management services for several major construction projects.

Education

- M.B.A./General Management, 1990, Cornell University
- B.S./Civil Engineering, 1986, Bucknell University

Registrations

- Professional Engineer, New York, 1995, #072164-1

- Working on the development and in-field testing of a cutting-edge remedial technology (particle broadcasting) that could set a significant and resounding precedent for other sediment sites throughout the country.

- Developing a performance specification used to implement dredging, dewatering, and disposal of approximately 3,500 cubic yards of PCB-containing river sediment. This performance specification, which included an intensive in-river monitoring program, detailed the standards that were to be met in completing the project and served as the project's bidding document. This monitoring plan was recognized with the Bronze Award from the CEC/NYS 1996 Engineering Excellence Awards Program.

- Developing a construction documentation report that presented and analyzed data collected during dredging operations. Evaluated the technical effectiveness of hydraulic dredging in the river relative to its ability to remove sediment and minimize the resuspension of solids. The report also presented an evaluation of how the production and escape of contaminants (including TSS) affected river biota.

- Preparing an RI report that presented and interpreted all water column, sediment, and biota data. The report consisted of in-depth analyses of these data - statistical and otherwise - allowing the client to better understand the true nature and extent of PCB-containing media.

- Implementing a sediment transport model to understand the deposition/scour areas within the river. This information was useful in generating and evaluating potential remedial alternatives.

- Developing an FS report used to evaluate various remedial options for the site. This report provided a comprehensive evaluation of the site as a whole and focused on the need to control continuing sources to the river prior to undertaking any large-scale remediation. Detailed consideration was also given to dredging, capping, and natural recovery technologies.

Managed the RI/FS program associated with a 1,000-foot-long feeding tributary to the Ottawa River in Ohio. Tributary sediments had been shown to contain high levels of PCBs. Developed plans and specifications to remediate the site via mechanical dredging. Efforts also addressed remediation and restoration of the low-lying wetlands that bordered the site. The resulting sediment remediation project was labeled by the USEPA Region 5 Administrator as one of the "best" completed in the region.

Provided engineering services for development of a feasibility study for the Lower Fox River in Wisconsin. Managed the development of multiple alternatives for this 40-mile stretch of river, focusing primarily on sediments. In addition, managed the review/ critique of Wisconsin Department of Natural Resource's voluminous and highly technical RI/FS report.

Provided engineering services for a site located along the Genesee River that had been impacted by coal tar wastes presumed to be associated with nearby manufactured gas plant (MGP) sites. The RI/FS considered site soils (surface and subsurface), groundwater, coal tar residuals, marsh sediment, and river sediment. The site is located adjacent to a power dam with complex hydrogeological characteristics. A comprehensive RI/FS document was completed and submitted to the New York State Department of Environmental Conservation (NYSDEC).

Developed strategic remedial approaches and associated cost estimates for mitigating coal tar-impacted sediments at an MGP facility in Binghamton, New York. Constituents were of particular concern as there was a drinking water intake located nearby.

Additional Hazardous Waste/Engineering Design Experience

Provided engineering services for the Tennessee Gas Pipeline Company at two compressor stations in New York. Responsible for remedial design/remedial action (RD/RA) and project oversight, including preparing contract documents, plans, and specifications for remediation of impacted soil and drainlines; negotiating the RD with the NYSDEC; managing construction oversight during the RA; and completing the documentation report.

Maintained the Resource Conservation and Recovery Act (RCRA)/Toxic Substances Control Act (TSCA) compliance program at a large manufacturing complex. Instituted a plant-wide reconnaissance program to inventory all hazardous substances/chemicals and identify all liquid waste streams that were entering the complex's storm sewer system. Also gathered information used to create a preparedness and prevention plan for the site.

Responsible for the design and start-up of a stormwater treatment system for the remediation of trichloroethane (TCE). The process consisted of two 1-million-gpd pumping stations and two air stripping towers. To provide more efficient treatment, the facility's stormwater outfalls were consolidated. Supplied technical support for State Pollution Discharge Elimination System (SPDES) permit evaluation and assisted in the hydrogeologic evaluation of the site.

Designed a long-term treatment system for TCE-containing groundwater. Responsible for designing the system's submersible pumps, air stripper towers, piping, and valves. Provided daily engineering support during the construction phase of the project.

Evaluated the effectiveness of an existing wastewater treatment system located within a large manufacturing complex. Reviewed and evaluated the system's components and operations/maintenance procedures. Recommended system improvements to avoid SPDES permit violations, specifically related to pH.

Designed a 20-gpm treatment system to remediate volatile organics (i.e., benzene and toluene) contained in groundwater. Prepared the engineering drawings and equipment specifications and provided engineering support to field personnel during construction.

Designed the upgrade of a groundwater treatment facility to improve the system's economics and efficiency. The upgraded process consisted of three recovery wells that captured groundwater contaminated with benzene, toluene, ethylbenzene, and xylene (BTEX) and transferred it to liquid phase granular activated carbon units.

Managed the development and implementation of preferential pathway analyses for many large industrial clientele. The analyses identify potential pipelines that may serve as conduits for off-site constituent migration.

Designed a 4,500 cubic-foot-per-minute off-gas treatment system engineered to remove hazardous airborne substances emitting from sludge storage tanks.

Designed a separate-phase hydrocarbon recovery system for a utility company. The system was designed to recover free oils floating on top of the groundwater table.

Assisted in the preparation of several feasibility study reports. PCBs, VOCs, and metals (including lead) in soil and groundwater were the primary focus of such reports.

Worked closely with the U.S. Army in Aberdeen, Maryland to secure an updated RCRA Part B Permit for the purpose of storing hazardous wastes, including explosives.

Environmental Process Management Experience

Provided Environmental Process Management investigation and review for Mercury Marine in Wisconsin. The focus of the project was to assist Mercury Marine in

evaluating its current environmental situation, and shape the program's organization and efficiency with bottom-line financial accountability. The project generally consisted of the following tasks:

- collecting and analyzing total environmental costs and recommending ways in which these costs could be reduced, either through process and/or accounting modifications;
- evaluating the client's overall environmental compliance and developing environmental performance metrics;
- developing an environmental cost monitoring tool (i.e., computer software designed to track environmental monitoring costs);
- evaluating how environmental issues are integrated into product development and process implementation functions; and
- evaluating environmental data management requirements.

Construction Experience

Supervised field operations on a bridge overpass project in northern New Jersey. Coordinated the activities of six subcontractors and maintained the overall project, budget, and schedule. Assisted with the layout of the bridge beams/decking.

Prepared bid estimates for several construction projects ranging in size from $100,000 to $2.5 million. Responsible for conceptualizing equipment and labor crews necessary to complete construction. Prepared and maintained job schedules once projects were initiated. Also responsible for tracking job expenses and overhead.

Assisted in the overall supervision of a storm sewer/water line replacement project in central New York. The job included replacing 1.5 miles of pipeline.

Performed land surveying for several projects including road, bridge, building, and swale construction.

Professional Affiliations

- American Society of Civil Engineers
- Bronze Award, CEC/NYS 1996 Engineering Excellence Awards Program for dredging project entitled Grasse River Non Time Critical Removal Action
- Blasland, Bouck & Lee, Inc. Project Management Committee

Training

- 40-Hour OSHA Training
- OSHA Supervisory Course
- CPR/First Aid
- Soil Remediation Technologies

Publications

Briot, J.E., P.E., J.P. Doody, P.E., M.M. Miller, and R. Romagnoli, P.E. May 15-18, 1999. "Environmental Dredging Case Studies: A Look Behind the Numbers." Presented at the 31st Annual Texas A&M Dredging Seminar/WEDA XIX Meeting, Louisville, Kentucky.

Foster, D.S., P.E., R. Romagnoli, P.E., J. Smith, Ph.D., P.E., and Louis J. Thibodeaux, Ph.D. 1999. Addressing Sediments: Defining Effective Remediation. *Engineering News Record*, March 22/March 29, 1999, pp. E-13.

Doody, J.P., P.E., R. Romagnoli, P.E., H.M. VanDewalker, and W.A. Ackner. July 1, 1998. "The Future Challenges of Environmental Dredging." Presented at the 15th World Dredging Conference by Robert Romagnoli, P.E., Las Vegas, NV.

Doody, J.P., P.E., D.S. Foster, P.E., and R. Romagnoli, P.E. November 6-8, 1995. "Sediment Remediation: How Much Does It Really Cost?" Presented at Superfund XVI Conference & Exhibition, by R. Romagnoli, P.E., Washington, DC.